



Platinum Game for Critical Thinking Assessment through Language for Primary School Students

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Abstract

This article presents the results of research on the use of games for the assessment of critical thinking at the 5th grade of elementary school. The game used in this research is named Game Platinum. Platinum Games is made by utilizing the online facilities, so students can interact. Game contains a story that utilize dialogue and dialectic thinking skills are packaged in an authentic case. Dialogic thinking refers to two-way communication, where there is someone talking and there is someone else listening visualized in the game. Events presented in the game are in the form of cases with dialogical questions. These questions are the critical thinking skills that should be mastered by students. The ability to think that was measured was the ability to construct hypotheses in the forms of conditional sentences. Conditional sentences that can be produced by the students are hypothesis sentences that are characterized by the use of conjunctions to express the relationship assumption, namely (1) assumption that is not possible, (2) assumption that may occur, (3) assumption that describe concerns, and (4) assumption that deals with uncertainty. The conditional sentences produced by the students were the ones to connect two or more clauses. Subordinate clause stated assumption related to the implementation of the main clause. This study reinforces the notion that children aged 10 years are able to think critically with language scaffolding used to express events or cases.

1. Introduction

The 21st century is characterized by the rapid development of information and communication technology. It is a challenge and an opportunity for education. The 21st century is changing the pattern of human life in all aspects, including learning. To deal with the learning in the 21st century, everyone should have the critical thinking skills, knowledge and capabilities of digital literacy, information literacy, media literacy, and master information and communication technology [1]. There are ten important job skills. They are (a) Ability to work in a team, (b) Ability to Make decisions and solve problems, (c) Ability to plan, organize and prioritize work, (d) Ability to communicate verbally with people inside and outside an organization, (e) Ability to obtain and process information, (f) Ability to analyze quantitative data (g) Technical knowledge related to the job, (h) Proficiency with computer software programs, (i) Ability to create and / or edit written reports, and (j) Ability to sell and influence others.

Referring to the results of research conducted by Boeriswati, information literacy requires critical thinking skills to process and present information [2]. She has developed Platinum Learning Model to improve critical thinking skills in Indonesian language learning in primary school. Platinum model that has been developed is a brain-based learning which stressed that the study should provide an enjoyable experience. A pleasant learning experience is created through learning methods and media to encourage students to try and find out by themselves. It turned out to provide excellent results in learning [3]. In this model, the learning should be fun, including assessment activities related to the mastery of knowledge, in this regard the ability of critical thinking, that should also be fun. This paper will discuss how to conduct an assessment on learning the Indonesian language as a means of critical thinking in elementary school. Thinking in the language is one of the goals of learning Indonesian in Elementary School.

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2. The assessment of critical thinking of primary school students through the game platinum

Critical thinking is an active, systematic and reasonable effort, considering various viewpoints to understand and evaluate the information with the purpose of determining whether the information is accepted, rejected or deferred judgment. Bruer states that critical thinking includes the ability to think reflectively and independently [4]. Someone who has the critical thinking skills can do things like (a) understanding the logical relationships between ideas, (b) identifying, (c) constructing and evaluating arguments, (d) detecting inconsistencies and common errors in reasoning, (e) solving problems systematically, (f) identifying the relevance and importance of ideas, and (g) reflecting the justification of beliefs and values of their own [5].

How about the elementary school students at the age of 10 years? Are they able to think critically? If yes, what is the level of their critical thinking skills? Piaget uses the term concrete operational to describe the ability at this stage as "can think" [6]. The characteristic of thinking of children at the stage of concrete thinking at this period are combination or classification, reversibility, associativity, identity, one-to-one relation between objects of two classes, and awareness of conservation principles. The ability of students to do conservation, combination, and associativity means that students are able to develop and think very logically. This kind of thinking system is, however, still tied to the reality or the concrete situation. Students at this stage according to Piaget cannot think of hypotheses and solve abstract problems whose solutions should be coordinated to many factors.

In contrast, Vygotsky says about the zone of proximal development (ZPD) containing an understanding that the child has the ability to solve problems assisted, but the problem is still in the children's closest development zone [7]. Vygotsky also says that primary school students can think critically as long as they are given scaffolding in learning [8].

The appropriate way that can be done to foster critical thinking skills of students in learning is to confront students on topics or themes that are controversial and close to their world, that is by using themes that provide opportunities for students to think. This is similar to the opinion expressed that in addition to the theme to foster critical thinking skills in learning, teachers must use the method of discussion and debate as well as providing opportunities and stimulate students to ask questions. But the problem is that teachers teach classically with the number of students more than 25 people in a class, so the teacher cannot serve students individually.

On this basis, the author developed Game Platinum. Game is a real life replica that could be presented in the lives of students through visualization. The content of the game is a problem that must be solved by the students by using language as the scaffolding for critical thinking. The reason the author uses digital game is to offset future civilization. Information society is civilization in which information has become a major commodity in human interaction.

Smartphones can also be used to improve learning in a variety of ways. From the perspective of the followers of Vygotsky-Bruner, the commands on the screen of Smartphone are scaffolding [9]. When children use the education software, Smartphone provide assistance or instructions in detail as implied in accordance with the position of children who are in ZPD. The level of real growth is the ability of solving problems independently while the level of potential development is problem solving skills under the guidance of adults through collaboration with a more capable peer movement. In this regard scaffolding is given artificially in the game. According to Suaidy child world is a world of playing, and it is surprising if they really like the game. However, children still need to have a time limit for playing. "Let's not forbid children to play because normally the game has a positive effect on the child [10].

3. Results and discussion

This study focuses on students' ability to think critically on the level of dialogue embodied in the form of hypothesis sentence formulation. In the game, the critical thinking assessment instruments that are depicted visually can be repeated according to the needs and level of understanding. Game assessment instrument can provide feedback directly to the sections created interactively. In another part, the students gave answers that given descriptively in an offline manner. Students are asked to assume the events that may occur despite unprecedented in their daily lives based on the existing problems in the game.



Based on the test results presented in the game, the students are able to make various conditional sentences, that is the assumption might not happen is characterized by the use of conjunctions *andaikan*, *seandainya*, *andaikata*, *umpama*, *sekiranya*.

A fifth grader is already able to make a conditional sentence based on the illustration above. Here are some examples of conditional sentences that hypothesize something that can't happen.

- *Andaikan ada seorang peri yang baik hati membantu Rani, pasti nilai Rani bagus.*
- *Seandainya Rani punya IQ tinggi, dia akan jadi juara.*
- *Andaikata Mira mampu menyihir Rani jadi orang pandai, pasti dia tidak akan diejek teman-temannya..*

Presuppositions that may occur are characterized by the use of conjunctions *apabila*, *jika*, *jikalau*, *bila*, *bilamana*. Here are some examples of conditional sentences that tell the situations or events that may occur.

- *Kita akan mendapat nilai jelek jika kita malas belajar.*
- *Bila Mira menyanyangi sahabat, Mira akan senang menolong yang sedang susah.*
- *Bila Mira terlambat menolong Rani, mungkin Rani sudah putus asa.*
- *Mira akan tahu apa yang terjadi pada Rani bila tidak membantu segera.*
- *Rani akan berdosa jikadendam pada teman yang mengejeknya.*
- *Jika Rani mudah putus asa, dia akan bodoh selamanya.*
- *Bila kita diejek teman, kita tidak usah membalas.*

Students have not been able to construct a conditional sentence that describes concern, which is marked by conjunctions *jangan-jangan*. Likewise, the assumption that deals with uncertainty is characterized by the use of conjunction *kalau-kalau*. Event or occurrence that has happened can be assumed presence by using conditional sentences. Conditional sentences are characterized by the use of conjunctions that states the relationship assumption, namely (1) assumption that is not possible, (2) assumption that may occur, (3) assumption that describe concerns, and (4) assumption that deals with uncertainty. In principle, the forms of the conditional sentences connect one main clause with one or more subordinate clauses. Subordinate clauses state condition for the occurrence of the main clause. The assumption that may not happen is characterized by the use of conjunctions *andaikan*, *seandainya*, *andaikata*, *umpama*, *sekiranya*.

4. Conclusion

Game Platinum as an instrument for the assessment of critical thinking is very positive to be applied in teaching as long as it is under the guidance of teachers and adults. Therefore, the game is developed by blended learning approach. The teacher's role cannot be eliminated, but the role of students is maximized in accordance with the concept of learning centered on students. In addition, to train students' independence, smartphone-based game was developed as a bridge to connect a teacher to students primarily on the characteristics of two different generations, that is generation X and generation Z. this game can implement the demands of the 21st century work skills in teaching in an elementary school that would constitute the labor force at the time of the demographic bonus for Indonesia in the year 2045.

Elementary school students can think critically in the presence of the scaffolding that leads thinking abstractly to thinking concretely. Learning strategies to develop critical thinking skills are dialogical and dialectical thinking. In this way students can use critical thinking on everything, including to themselves. With the critical thinking at the level of dialectical thinking in the forms hypotheses, students are able to assume and find new or alternative possibilities based on the underlying assumption. This ability is formed by their ability to think ahead. Thinking ahead is the ability of students to make a prediction based on their experiences. This is where the students apply insight and foresight ability. These abilities are needed to improve the competitiveness of human resources.

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